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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,000	11/18/2003	Julio Burkhard Seeger Stein	4369-032092	4205
28289	7590	09/15/2004	EXAMINER	
WEBB ZIESENHEIM LOGSDON ORKIN & HANSON, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219			JOLLEY, KIRSTEN	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/716,000

Applicant(s)

SEEGER STEIN, JULIO  
BURKHARD

Examiner

Kirsten C Jolley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/4/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:

The word "silice" is used throughout the specification, however it is known a known word to the Examiner. The Examiner questions whether Applicant means either -silica--, --silicate--, or --silicon--.

The claims require some limitations that are not disclosed in the specification. The claim limitations are not new matter because they were originally filed with the specification. However, it is requested that Applicant amend the specification to include these disclosures so that the specification properly discloses all of the claimed limitations. For example, it is noted that the limitations of claims 21-24 are not disclosed in the specification.

Appropriate correction is required.

### *Claim Objections*

2. Claims 23-24, 36, and 39 are objected to because of the following informalities:

In claims 23 and 24, line 2, the Examiner suggests changing "in weight" to --by weight--.

In claim 32, line 3, the Examiner suggests changing "in weight" to --by weight--.

In claims 36 and 39, line 2, it is noted that "alkalineearth" should be two words, --alkaline earth--.

Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 21, 23-24, and 30-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation "the impregnation with silica" in line 2. There is insufficient antecedent basis for this limitation in the claim. The Examiner questions whether "silica" should be --silicate--.

In claim 23, line 2, the claim is vague and indefinite because it is not known what "silice" is.

In claim 24, line 2, the claim is vague and indefinite because it is not clear what the phrase "in a silicon solution" requires. The specification does not clarify what type of silicon solution the silicate is in.

Claims 30 and 31 both recite the limitation "the metaborate" in line 1. There is insufficient antecedent basis for this limitation in the claim. The Examiner questions whether claims 30 and 31 should depend from claim 29.

In claim 32, lines 2-3, the phrase "content of soluble metaborate of 0.02% to 0.7% of boron" is vague and indefinite because it is not clear whether the claimed percentage is the percent of boron or the percent of metaborate.

In claim 33 (line 3) and claim 34 (line 2), the claim is vague and indefinite because it is not known what "silice" is.

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In claim 33, lines 2-3, the phrase “preferably 0.40 to 1.40 kg/m<sup>3</sup> of wood and of 4 to 126 kg/m<sup>3</sup> of silice, preferably between 18 and 74 kg/m<sup>3</sup> of wood” is vague and indefinite because it is not clear how this limitation is a further limitation of the final concentration of boron.

Claims 35-38 recite the limitation “the washing” in line 1. There is insufficient antecedent basis for this limitation in the claim. The Examiner questions whether claims 35-38 should depend from claim 34.

### ***Claim Interpretation***

5. It is noted that the phrases starting with “preferably” in the claims have been interpreted as requiring only the broader of the limitations disclosed. For example, claim 21 which recites “pH between 9 and 13, and preferably between 11 and 12” has been broadly interpreted, for the purpose of examination, as requiring a pH in the range of 9-13.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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7. Claims 20-21 and 25-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Holcomb (US 2004/0166246).

Holcomb discloses a method of impregnating wood with an aqueous solution comprising an alkali metal hydroxide and a soluble silicate and a boron compound, having a pH of at least about 10 (paragraph [0021]). While Holcomb does not specifically state that the pH permits partial neutralization and insolubilization of the salts in situ by the action of acid groups present in the wood and the acidic action of carbon dioxide in surrounding air, it is the Examiner's position that this effect must necessarily occur in the process of Holcomb since the materials and process steps of Holcomb are materially similar to those disclosed by Applicant. Any differences in properties between the claimed invention and that of Holcomb must have been caused by process variables not claimed in the instant application.

With respect to claim 21, Holcomb discloses a pH of an exemplary composition of 10.8 in Example 1.

As to claims 25-26, Holcomb discloses that impregnation preferably occurs using vacuum and pressure, as described in paragraph [0019] and Example 2. In Example 2, Holcomb discloses using a liquid pressure of 150 psi, or 10.2 atm, for 30 minutes to 2 hours, or 30-120 minutes, which anticipates claim 26.

As to claims 27-28, Holcomb also discloses that the composition may alternatively be applied at ambient atmosphere (Abstract) and by spraying (paragraph [0023]).

As to claims 29-31, Holcomb discloses that the boron is added via boric acid or borax (sodium tetraborate), which will necessarily form metaborate salts in solution.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 22-24 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holcomb.

Holcomb is applied for the reasons discussed above in section 7.

With respect to claim 22, Holcomb is silent with regard to the humidity level of the wood being treated. It is noted that Holcomb does not disclose that the wood used is first dried before its treatment. The wood humidity level would have varied depending upon the type of wood being treated and the form the wood is in.

As to claims 23-24, Holcomb discloses that sodium or potassium silicate may be used as the alkali metal silicate, and that the silicate is preferably present in an amount of 1-30 % by weight (paragraphs [0023]-[0024]). Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Holcomb's silicate range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974).

As to claims 32-33, Holcomb discloses an amount of boron-containing salt in the range of about 1 to about 30% by weight (paragraph [0023]). It is noted that "about 1 %" is not a limiting endpoint, and is very close to 0.7 %. It would have been obvious for one having ordinary skill in the art to have determined the optimum amount of boron-

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containing salt through routine experimentation depending upon the specific wood being treated and the desired qualities of the treated wood, in the absence of a showing of unexpected results.

10. Claims 34, 36, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holcomb as applied to claim 20 above, and further in view of Shiozawa (US 5,478,598).

Holcomb lacks a teaching of treating its impregnated wood with a solution comprising soluble alkaline earth compounds. Shiozawa discloses a step, after first impregnating wood with a composition comprising silicate and boron compounds, of further treating the impregnated wood with an aqueous solution containing alkaline earth compounds because sodium silicate in the already-impregnated composition reacts in the presence of these compounds and becomes insoluble, closing up tiny ducts in the wood (col. 3, lines 16-25). It would have been obvious for one having ordinary skill in the art, upon reading the reference of Shiozawa in combination with Holcomb, to have performed an additional step of treating the wood with a solution containing alkaline earth compounds in order to render the silicate insoluble and to close tiny ducts in the wood.

11. Claims 34-35 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holcomb as applied to claim 20 above, and further in view of Crews, IV et al. (US 5,205,874).



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Holcomb lacks a teaching of treating its impregnated wood with a solution comprising acids. Crews, IV et al. discloses a step, after first impregnating wood with a composition comprising silicate, of further treating the impregnated wood with a phosphoric acid solution to form a bi-layer of the silicate (see Abstract). It would have been obvious for one having ordinary skill in the art, upon seeing the reference of Crews, IV et al. in combination with Holcomb, to have performed an additional step of treating the wood with a acid solution, such as phosphoric acid taught by Crews, IV et al., in order to form bi-layers which improves protective resistance to corrosion, fire and heat (col. 3).

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shiozawa (US 5,478,598) is cited for its teaching of a wood impregnating solution comprising silicate and boron compounds and an alkaline hydroxide such as cupric hydroxide and/or zinc hydroxide, and having a basic pH of 9-13.

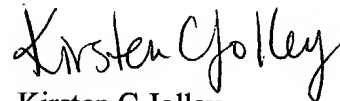
Grantham et al. (US 6,235,349) is cited for its teaching of a wood impregnating solution comprising silicate and boron compounds and is maintained at a basic pH of 10-14.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Thursday and every other Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kirsten C Jolley  
Patent Examiner  
Art Unit 1762

kcj